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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,185	09/24/2002	Johni Chan	73543	6299

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FITCH EVEN TABIN AND FLANNERY  
120 SOUTH LA SALLE STREET  
SUITE 1600  
CHICAGO, IL 60603-3406

EXAMINER

DANG, KHANH

ART UNIT PAPER NUMBER

2111

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/065,185

Applicant(s)

CHAN, JOHN I

Examiner

Khanh Dang

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/01/2006 Amendment.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-31 is/are pending in the application.
- 4a) Of the above claim(s) 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Pincus et al. (Pincus).

With regard to claim 23, Pincus discloses a redundant bus controller (RBC) for controlling access to a bus (multiple CPU registers provided in CPU register array 88 define the redundant bus controllers), comprising: a peer coupling to communicate state information of the RBC to another bus controller for coordinating control of a bus between a plurality of system hosts (it is clear from Pincus that each CPU 40, for example, are coupled to another CPU 40 shown in Figs. 5 and 7, and coupled to the at least multiple registers provided by register arrays 88 shown in Fig. 7 to communicate state information); a control and status register configured to retain the state information of the RBS (it is clear that in Pincus, multiple CPU registers are provided in CPU register array 88, including the CPU barrier control and status register (suitably one per node, with one bit per CPU) which may be used to indicate and determine when a CPU

is at a barrier state, a hold mask enable control and status register which allows individual or multiple CPUs on a node to be placed in a "HOLD" condition (i.e. suspended from using the node bus) when both a hold mask enable bit and a CPU barrier bit for the corresponding CPU are set, and a configuration mask control and status register which allows software to configure CPUs into or out of the node. Each CPU is represented by a bit in the configuration mask control and status register whereby the currently available CPUs in the configuration register can define the "next" CPU. The node arbitration control and status register contains the value associated with the CPU on the node having highest round robin priority within a node. A software interrupt control and status register (also included in array 88) allows individual or multiple CPUs to be interrupted by a write to the register (or returns status when read). The CPU registers may be accessed locally by the processing elements on the node without any access to the memory system); and a sequencer configured to transition the RBC between a state in which the RBC control access to the bus and a state in which the RBC is released from controlling access to the bus according to the state information retained in the control and status register (in Pincus, multiple CPU registers provided in CPU register array 88 define the redundant bus controllers. The RBC comprises a sequencer 24 having an array of CPU registers included in multiple registers provided by register arrays 88 that are manipulated by the processing elements on the bus based on whether they are requesting, using or releasing data bus 16. Each processor reads the CPU registers in sequencer 24 prior to accessing memory 14 to determine if the processor is allowed access. When access to the bus is given, the

processor transfers data to memory 14 and then disables a register bit in a register of sequencer 24. Sequencer 24 then enables the processor with the next highest priority to transition the state of the apparatus. Further, in Pincus, multiple CPU registers are provided in CPU register array 88, including the CPU barrier control and status register (suitably one per node, with one bit per CPU) which may be used to indicate and determine when a CPU is at a barrier state, a hold mask enable control and status register which allows individual or multiple CPUs on a node to be placed in a "HOLD" condition (i.e. suspended from using the node bus) when both a hold mask enable bit and a CPU barrier bit for the corresponding CPU are set, and a configuration mask control and status register which allows software to configure CPUs into or out of the node. Each CPU is represented by a bit in the configuration mask control and status register whereby the currently available CPUS in the configuration register can define the "next" CPU. The node arbitration control and status register contains the value associated with the CPU on the node having highest round robin priority within a node. Thus, it is clear that in Pincus, The RBC comprising a sequencer 24 having an array of CPU registers included in multiple registers provided by register arrays 88, is configured to transition the RBC between a state in which the RBC control access to a bus and a state in which the RBC is released from controlling access to the bus).

With regard to claims 24 and 25, in Pincus, either the node arbitration control and status register (provided by register array 88 and connected to arbiter 52/144) or the arbitration control register 300 is readable as a register interface coupled to an arbiter. The node arbitration control and status register contains the value associated with the

CPU on the node having highest round robin priority within a node. See also Figs. 12(a, b) and description thereof.

With regard to newly added claim 26, either the node arbitration control and status register (provided by register array 88 and connected to arbiter 52/144) or the arbitration control register 300 is readable as a register interface. It is clear that a software access can be provided to the register interface via the node's external bus. In particular, in Pincus, multiple CPU registers are provided in CPU register array 88, including the CPU barrier control and status register (suitably one per node, with one bit per CPU) which may be used to indicate and determine when a CPU is at a barrier state (hereinafter described), a hold mask enable control and status register which allows individual or multiple CPUs on a node to be placed in a "HOLD" condition (i.e. suspended from using the node bus) when both a hold mask enable bit and a CPU barrier bit for the corresponding CPU are set, and a configuration mask control and status register which allows software to configure CPUs into or out of the node. Each CPU is represented by a bit in the configuration mask control and status register whereby the currently available CPUs in the configuration register can define the "next" CPU. The node arbitration control and status register contains the value associated with the CPU on the node having highest round robin priority within a node. A software interrupt control and status register (also included in array 88) allows individual or multiple CPUs to be interrupted by a write to the register (or returns status when read). The CPU registers may be accessed locally by the processing elements on the node without any access to the memory system. It is also clear tha setting arbitration logic for

arbitration control register 300 is performed using software. Setting the arbitration bit in arbitration control register 300 sets the highest priority node to '0'. When a memory port request is present, the highest priority processor node requesting access to a given memory port is allowed the current cycle for memory access. Once a node wins arbitration, the PAL encodes the P(7:0)M7ACK signals indicating which node has won. At completion of the arbitration cycle the current requester is placed at the bottom of the priority level and the next numerical requester becomes the highest priority. For example, when processor node P1 and processor node P3 are the first requesters after a system reset or a software set, processor node P1 has the highest priority level, making P3 the next highest level requester. Processor node P1 is given access to the memory port and at the completion of the arbitration cycle, node P1 is placed at lowest priority, making node P2 the highest level requester. If processor node P2 is not presenting a request for the memory port then node P3 is passed priority and transfers data during the next arbitration cycle. At the completion of the data transfer from processor node P3 to the memory port, processor node P3 is placed at the bottom of the priority level making processor node P1 the highest priority requester.

With regard to claim 27, the configuration register defines the next CPU to receive control, when synchronizing CPUs and nodes. For example, if the configuration register shows CPUs 1, 3, 4 and 7 as being configured, and CPU 1 is presently operating, the next CPU is 3, followed by 4, followed by 7. If CPU 7 is presently transferring data, once CPU 7 completes the data transfer, control of the node bus is given to CPU 1. The sequential ordering above is

given by way of example and is not intended as a requirement. The hold mask enable register, CPU barrier register, node barrier register, and the configuration register are used in conjunction with each other to reduce bus conflicts, synchronize processing elements within each processing node and between processing nodes, and to effectively process non-parallel applications.

With regard to claim 28, it is clear that in Pincus, the memory or I/O devices is readable as a peripheral device controlled by a host.

With regard to claim 29, see discussion above.

With regard to claim 30, multiple CPU registers provided in CPU register array 88 define the redundant bus controllers connected to a plurality of hosts. It is clear that even one host fails the multiple CPU registers provided in CPU register array 88 are still configured to coordinate control of the bus.

### ***Response to Arguments***

Applicants' arguments filed 11/01/2006 have been fully considered but they are not persuasive.

At the outset, Applicants are reminded that claims subject to examination will be given their broadest reasonable interpretation consistent with the specification. *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997). In fact, the "examiner has the duty of police claim language by giving it the broadest reasonable interpretation." *Springs Window Fashions LP v. Novo Industries, L.P.*, 65 USPQ2d 1862, 1830, (Fed. Cir. 2003). Applicants are also reminded that claimed subject matter not the specification, is



the measure of the invention. Disclosure contained in the specification cannot be read into the claims for the purpose of avoiding the prior art. *In re Sporck*, 55 CCPA 743, 386 F.2d, 155 USPQ 687 (1986).

With this in mind, the discussion will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitations that are not in the claims or any arguments that are irrelevant and/or do not relate to any specific claim language will not be warranted.

**Withdrawn Claim 31:**

Applicants state that "Claims 23-31 are pending and stand rejected. The Office Action rejected claims 23-30 under 35 U.S.C. §102(b) over U.S. Patent No. 6,282,583 to Pincus. The Office Actions stated that claim 31 was withdrawn. The rejections as they may apply to the claims presented herein are respectfully traversed. As for claim 31, Applicant can find no record of withdrawing or canceling the claim. Accordingly, the Applicant believes that claim 31 remains pending"(emphasis added).

In response to Applicants, claim 21 has been withdrawn by Applicants in the amendment filed 2/27/2006. Claim 31, as filed, is reproduced below:

Claim 31 (withdrawn): The redundant bus controller as claimed in claim 23, wherein the peer coupling is configured to allow the RBC to signal a disconnecting state to the other bus controller.

**The Pincus Rejection:**

Applicants argue that "Amended claim 23 recites a redundant bus controller (RBC) that controls access to a bus. The RBC includes a peer coupling that is configured to communicate state information of the RBC to another bus controller for coordinating control of a bus between a plurality of system hosts. A control and status register is configured to retain the state information of the RBC. Additionally, a sequencer is configured to transition the RBC between a state in which the RBC controls access to the bus and a state in which the RBC is released from controlling access to the bus according to the state information retained in the control and status register.

In contrast, Pincus includes a sequencer 24, a memory 14, processors 40, and a bus 16. See FIG. 3 of Pincus. As mentioned in Pincus "[e]ach processor reads the CPU registers in sequencer 24 prior to accessing memory 14 to determine if the processor is allowed to access [the memory]." Pincus, col. 9, lines 39-41. In other words, since the bus 16 is used to access the sequencer 24, the sequencer 24 only controls access to memory 14, not to access the bus 16. Because the processors 40 of the Pincus system must communicate with the sequencer 24 over the bus 16 before accessing the memory 14, the sequencer 24 does not control access to the bus 16 and, therefore, is not released from controlling access to the bus 16 as recited in amended claim 23.."

In response to Applicants' argument, at the outset, it is noted that as clearly explained in the rejection set forth above, multiple CPU registers provided in CPU

register array 88 define the redundant bus controllers. The RBC comprises a sequencer 24 having an array of CPU registers included in multiple registers provided by register arrays 88 that are manipulated by the processing elements on the bus based on whether they are requesting, using or releasing data bus 16. Each processor reads the CPU registers in sequencer 24 prior to accessing memory 14 to determine if the processor is allowed access. When access to the bus is given, the processor transfers data to memory 14 and then disables a register bit in a register of sequencer 24. Sequencer 24 then enables the processor with the next highest priority to transition the state of the apparatus. Column 9, lines 32-45 are reproduced below:

FIG. 3 illustrates an aspect of the present invention in a multiple processor, single bi-directional bus system. Multiple processing elements 40, I/O interface 10 and memory 14 are connected to bus 16. Sequencer 24 includes an array of CPU (i.e. processor) registers that are manipulated by the processing elements on the bus based on whether they are requesting, using or releasing data bus 16. Each processor reads the CPU registers in sequencer 24 prior to accessing memory 14 to determine if the processor is allowed access. When access to the bus is given, the processor transfers data to memory 14 and then disables a register bit in a register of sequencer 24. Sequencer 24 then enables the processor with the next highest priority.

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As also explained the rejection set forth above, in Pincus, multiple CPU registers are provided in CPU register array 88, including the CPU barrier control and status register (suitably one per node, with one bit per CPU) which may be used to indicate and determine when a CPU is at a barrier state, a hold mask enable control and status register which allows individual or multiple CPUs on a node to be placed in a "HOLD" condition (i.e. suspended from using the node bus) when both a hold mask enable bit and a CPU barrier bit for the corresponding CPU are set, and a configuration mask

control and status register which allows software to configure CPUs into or out of the node. Each CPU is represented by a bit in the configuration mask control and status register whereby the currently available CPUS in the configuration register can define the "next" CPU. The node arbitration control and status register contains the value associated with the CPU on the node having highest round robin priority within a node. Thus, it is clear that in Pincus, The RBC comprising a sequencer 24 having an array of CPU registers included in multiple registers provided by register arrays 88, is configured to transition the RBC between a state in which the RBC **control access to a bus** and a state in which the RBC **is released from controlling access to the bus**.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

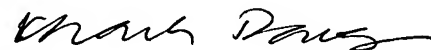
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Dang whose telephone number is 571-272-3626. The examiner can normally be reached on Monday-Friday from 9:AM to 5:PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart, can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Khanh Dang  
Primary Examiner